TRIPLE SITE [Offsite Operable Unit]

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SUNNYVALE, CA

Cleanup Activities

On this page:

- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0900265" \l "bkground"]
- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0900265" \l "Done"]
- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0900265" \l "Status"]
- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0900265" \l "Enforce"]
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On related pages:

- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.ous&id=0900265"]
- [HYPERLINK "https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.schedule&id=0900265"]

Background

In August 2014 the State of California, San Francisco Bay Regional Water Quality Control Board (Regional Board or RWQCB) transferred the agency oversight role for the Triple Site back to EPA Region 9. The "Triple Site" is the collective name for three adjacent sites in Sunnyvale that have jointly contributed to a groundwater plume containing volatile organic compounds (VOCs). The Triple Site incorporates the commingled VOC trichloroethylene (TCE) plume that has migrated offsite (or off-property) from the following three Superfund sites:

- [HYPERLINK "https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901552v" \h] at 811 E Arques Ave, 440 N Wolfe Road, and facilities along Stewart Drive (now owned by Philips Semiconductor, Inc.)
- [HYPERLINK "https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901389" \h] at 901-902 Thompson Place
- [HYPERLINK "https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901181" \h]at 825 Stewart Avenue (now owned by Northrup Grumman Corp.)

This comingled VOC plume incorporates an area that is managed as the Offsite Operable Unit (OOU) and includes schools and residences in the San Miguel neighborhood area. The groundwater VOC plume, composed of primarily TCE, extends from Signetics, AMD, and TRW Microwave sites to around a mile north to Highway 101. Groundwater investigations have been conducted at the Triple Site and remedial actions to clean up the groundwater are being taken

to address the TCE-contaminated groundwater. In addition, routine groundwater monitoring is being conducted.

Oversight of the Triple Site and the AMD, TRW Microwave, and Signetics sites were transferred to U.S. EPA Region 9 as part of an effort to expand the vapor intrusion (VI) investigation in the Offsite Operable Unit (OOU). Vapor intrusion is a process where chemicals in groundwater evaporate into a vapor or gas, rise through soil, and enter indoor air of buildings ([HYPERLINK "https://www.epa.gov/vaporintrusion"]).

To date, in the offsite operable unit (OOU) EPA has overseen sampling in more than 250 residences, school classrooms and commercial buildings. EPA is also overseeing installation and monitoring of vapor intrusion mitigation systems in buildings to prevent harmful levels of TCE vapor intrusion into buildings.

Drinking water is not affected by contamination. Municipal drinking water in Sunnyvale comes from treated water from the San Francisco Public Utilities Commission, treated surface water from the Santa Clara Valley Water District, and groundwater from outside the Triple Site. **Municipal drinking water is tested regularly** to ensure that it meets all applicable state and federal drinking water standards. Groundwater from the Triple Site is not used for drinking water.

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What Has Been Done to Clean Up the Site?

Initial Actions

Immediate Actions: The AMD 901/902, TRW Microwave, and Signetics sites all contributed to the comingled trichlorethylene (TCE) groundwater plume in the Offsite Operable Unit (OOU). The former Signetics, AMD, and TRW Microwave Sites all operated semiconductor manufacturing facilities beginning in the 1960s and 1970s. The manufacturing processes used various organic solvents (primarily including TCE), acids, corrosives, and metals.

Beginning in the 2000s, the Responsible Parties for the AMD and TRW sites - Advanced Micro Devices, Inc. and Northrop Grumman Systems Corporation - began additional cleanup activities focused on in-situ bioremediation, which greatly improved the quality of the groundwater emanating from their sites. In-situ bioremediation refers to a process where naturally occurring microbes present underground are stimulated with nutrients to break down the TCE into harmless products, such as chloride salts.

~~Initial investigation at the Signetics site (see the EPA Signetics website at: [HYPERLINK "https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901552v"]) began in February 1982 with detection of a leak in an underground waste solvent storage tank at 811 E. Arques Avenue. Soil contamination on the property was verified during tank removal. Following additional investigation at this location and at the other facility buildings (located at 440 N Wolfe Rd, 815 and 830 E. Arques Ave and Stewart Dr), the waste solvent storage tank and a wastewater neutralization tank area were identified as the principal source of contaminants from the Signetics site. These contaminants are now contaminating the downgradient areas within the Triple Site Offsite Operable Unit (OOU).~~

Similar efforts are now being put forth by Philips Semiconductors at the Signetics Site (see the EPA Signetics website at: [HYPERLINK "https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901552v"]), under an order effective March 15, 2019. This EPA order requires Philips to explore alternative treatment technologies to speed up the cleanup of the groundwater emanating from their site.

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What Is the Current Site Status?

Vapor Intrusion Investigation

In 2015, EPA directed responsible parties to investigate the potential for vapor intrusion at schools and residences within the Triple Site Offsite Operable Unit. Philips Semiconductors, Inc. has been implementing this effort.

To date, more than 275 residences and school buildings have been sampled, and EPA has overseen the installation and ongoing operation of more than 35 mitigation systems in residential and school buildings which prevent harmful levels of TCE vapors from accumulating inside buildings.

Results of School Sampling

King's Academy Sampling. All of the samples collected from The King's Academy fully met EPA's requirements for protecting children's health, with the exception of samples collected from the small auxiliary gymnasium when the doors were closed and the auditorium underneath the stage. Samples collected from the breathing zone of the auditorium were less than EPA's TCE Action Levels and met EPA's short-term health protective screening levels. For the small gym, "Open-door" sampling confirmed that fresh air flow into the building worked well to maintain acceptable air quality. Upon receipt of these sample results, EPA immediately coordinated with the school to ensure that the gymnasium's doors remained open while in use and EPA oversaw the installation of a mitigation system in the small gym in the fall of 2016. As a precaution, a vapor intrusion mitigation system was installed in the auditorium building in 2019. Additional sampling and continued operation of the vapor mitigation systems is ongoing.

San Miguel Elementary School Sampling: All of the samples collected from San Miguel Elementary School fully met EPA's requirements for protecting children's health. Some samples were found higher than outdoor air, which shows evidence of vapor intrusion occurring. The highest sample was from a crawlspace beneath the California Young World portable classroom, which measured 1.3 ug/m3 TCE, however samples collected from inside the building were similar to outdoor air and showed no evidence of unacceptable vapor intrusion. Out of precaution, a mitigation system was installed in this building in November 2016, as well as at three new classroom buildings constructed in the southern portion of the San Miguel campus during the summer and fall of 2016.

Rainbow Montessori School Sampling: The majority of the locations sampled at Rainbow Montessori showed low concentrations of TCE which do not pose a health risk and fully meet EPA's requirements for protecting children's health. Some sampling locations did show elevated

levels, however, above EPA's health-protective screening levels. Out of precaution, mitigation systems are being designed for all of the Rainbow Montessori buildings.

Results of Residential Sampling

As of September 2021, approximately 230 residences (out of around 500) have been sampled. Many households met EPA's health-protective requirements. Around 27 households showed unacceptable vapor intrusion levels and have had mitigation system installed to prevent vapor intrusion and unacceptable exposures.

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Enforcement Information

The responsible parties for the Triple Site Offsite Operable Unit are Philips Semiconductors, Inc. (formerly Signetics, Inc.), Advanced Micro Devices, Inc., and Northrop Grumman Systems Corporation (formerly TRW Microwave). In 2019, EPA reached an agreement with all three parties to continue indoor air studies and mitigation efforts to ensure protective levels of trichloroethylene (TCE) vapors in residences and school buildings in the Triple Site Offsite Operable Unit. The agreement – an Administrative Settlement Agreement and Order on Consent or ASAOC – provides for the continuation of residential and school vapor intrusion assessments begun under a previous 2015 EPA settlement with the parties. Under the new ASAOC, EPA will keep overseeing the design and construction of mitigation systems in affected buildings to prevent unacceptable levels of TCE vapors from migrating from contaminated groundwater into buildings.

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